

REMARKS

By this amendment, claims 13 and 15-17 have been amended and claim 14 has been canceled. Claims 2, 3 and 18 were previously canceled.

Claims 1, 4-13, 15-17 and 19-21 are currently pending in the application. Reconsideration and allowance of all of the claims is respectfully requested in view of the foregoing amendments and the following remarks.

In regard to Rejection of Claims 1, 4-5, 7, 9, 11 and 12 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1, 4-5, 7, 9, 11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Obata, Japanese patent document JP 2000-003705, in view of Emori, Japanese patent document JP 55-112114, and further in view of Coe, U.S. Patent No. 1,895,607. The Applicants disagree.

Claim 1 recites

[...] applying forces to the end portions of said working rollers such that each of said pair of working rollers bends thereby modifying the profile defined by said meeting surfaces [...]

Bearing this in mind, the Examiner's attention is directed to the following feature of claim 1:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claim 1 is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

This deficiency in Obata and Emori is not remedied by Coe.

Referring to lines 60-87 of page 1 of Coe, describing the operation of the crowned or convexed roll 12 of Coe,

when this crowned working roll is operated in connection with a flat backing roll or that is, a backing roll of uniform diameter

throughout, it will be evident that the contact between the rolls is practically a point and the entire pressure of operation must be taken by this limited surface of contact. This pressure in operation is sufficient to crush or distort the surfaces of the backing roll and work roll permitting excessive springing and bending of the work roll so as not to give a satisfactory finish to the metal being rolled. I have overcome this objection by concaving or forming the surface of the backing roll longitudinally as indicated at 13 to fit the surface of the work roll. That is, making this roll of somewhat smaller diameter at its center than at its ends. It will be apparent that the contact between the small work roll and the backing roll will thus be substantially a line extending throughout the entire length of the rolls and, therefore, the pressure and wear between the rolls instead of being at a point as where flat backing rolls are used, will be distributed throughout the length of the rolls and distorting, crushing and injuring of the surfaces are prevented.

Referring also to the Figure of Coe, it is apparent that Coe teaches using a convexed roll 10 only in combination with a complementarily concaved backing roll 11. The surface of the backing roll 11 of Coe is shaped to contact the work roll 10 along its entire length to prevent “distorting, crushing and injuring of the surfaces” of the work roll 10 and the backing roll 11. This is done to prevent the “excessive springing and bending of the work roll” of Coe, which would not give a satisfactory finish to the metal being rolled. Thus, Coe teaches preventing bending of the work roll 10 in order to maintain the surface of the work roll 10 and ensure a satisfactory rolled sheet metal product. Therefore, according to the teaching of Coe, the convexed work rolls 10 of Coe cannot be combined with either Obata or Emori to provide a pair of working rollers each having a convex cylindrical shape, wherein forces can be applied to the end portions of the working rollers such that each of the pair of working rollers bends thereby modifying the profile defined by the meeting surfaces.

Therefore, at least one feature of claim 1 is not taught by Obata, Emori or Coe, alone or in combination, which combination is denied. As such, the Examiner is requested to withdraw his rejection of claim 1 and claims 4-5, 7, 9, 11 and 12 depending therefrom.

In regard to Rejection of Claims 13-16 and 20 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 13-16 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Obata in view of Emori and further in view of Coe. The Applicants believe that the Examiner’s rejection has been addressed and overcome by the present amendment.

By the present amendment, claim 13 has been amended to incorporate therein the features recited in claim 14. Claim 14 has been canceled in consequence, and the Examiner's rejection is therefore moot with respect thereto. Claims 15 and 16 have been amended to correct their dependency in view of the cancellation of claim 14.

Claim 13 as amended recites

[...] applying forces to said working rollers such that each of said working rollers bends thereby to control the shape and profile of said lithium or lithium alloy film of reduced thickness being laminated [...]

Bearing this in mind, the Examiner's attention is directed to the following feature of claim 13 as amended:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claim 13 as amended is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

This deficiency in Obata and Emori is not remedied by Coe.

As discussed above with respect to claims 1, 4-5, 7, 9, 11 and 12, Coe teaches that the convexed work rolls 10 of Coe are prevented from bending, and therefore the work rolls 10 of Coe cannot be combined with a teaching that the working rollers can be bent. Therefore, Coe cannot be combined with either Obata or Emori to provide a pair of working rollers each having a convex cylindrical shape, and applying forces to said working rollers such that each of said working rollers bends thereby to control the shape and profile of said lithium or lithium alloy film of reduced thickness being laminated.

Therefore, at least one feature of claim 13 as amended is not taught by Obata, Emori or Coe, alone or in combination, which combination is denied. As such, the Examiner is requested to withdraw his rejection of claim 13 and claims 15, 16 and 20 depending therefrom.

In regard to Rejections of Claims 6, 14, 17 and 19 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 6, 14, 17 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Obata in view of Emori and Coe, and further in view of Diolot, U.S. Patent No. 3,795,124. The Applicants believe that the Examiner's rejection has been addressed and overcome by the present amendment.

By the present amendment, claim 14 has been canceled and the Examiner's rejection is therefore moot with respect thereto. Claim 17 has been amended to correct its dependency in view of the cancellation of claim 14.

The Examiner's attention is directed to the following feature of claims 1 and 13:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claims 1 and 13 is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

As discussed above with respect to claims 1, 4-5, 7, 9, 11 and 12, this deficiency in Obata and Emori is not remedied by Coe.

This deficiency in Obata and Emori is not remedied by Diolot, without admitting that Diolot can be combined with Obata or Emori and reserving the right to argue thereagainst in the future.

Referring to lines 6-8 of column 1 of Diolot, Diolot

relates to a method of detecting and compensating for defects on rolling mill rolls, and also a means for applying this method.

Referring also to Figure 1 of Diolot, it is apparent that Diolot relates to a method of adjusting the spacing between the working rolls 2 to compensate for defects in the working rolls 2. Diolot makes no mention of any particular shape of the working rolls 2, and by extension Diolot does not teach a pair of working rollers each having a convex cylindrical shape.

Therefore, at least one feature of claims 1 and 13 is not taught by Obata, Emori, Coe and Diolot, alone or in combination, which combination is not admitted. As such, the Examiner is requested to withdraw his rejection of claim 6 depending from claim 1, and claims 17 and 19 depending from claim 13.

In regard to Rejections of Claims 8 and 20 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 8 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Obata in view of Emori and Coe, and further in view of Martt, U.S. Patent No. 4,179,913. The Applicants believe that the Examiner's rejection has been addressed and overcome by the present amendment.

The Examiner's attention is directed to the following feature of claims 1 and 13:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claims 1 and 13 is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

As discussed above with respect to claims 1, 4-5, 7, 9, 11 and 12, this deficiency in Obata and Emori is not remedied by Coe.

This deficiency in Obata and Emori is not remedied by Martt, without admitting that Martt can be combined with Obata or Emori and reserving the right to argue thereagainst in the future.

Referring to the title of Martt, Martt relates to a "metal strip tensioning apparatus for use in continuous strip reduction cold mill and method".

Referring also to lines 13-16 of column 4 of Martt,

The successive mill stands of the mill are each indicated generally at 37, 38, 39, 40 and 41 respectively, these mill stands each being made up of the usual work rolls and back up rolls.

Martt makes no mention of any aspects of the construction of the mill stands 37, 38, 39, 40, 41. It is apparent that Martt teaches no particular construction of the mill stands, and

by extension Martt teaches no particular construction of the work rolls thereof. Therefore, Martt does not teach a pair of working rollers each having a convex cylindrical shape.

Therefore, at least one feature of claims 1 and 13 is not taught by Obata, Emori, Coe and Martt, alone or in combination, which combination is not admitted. As such, the Examiner is requested to withdraw his rejection of claim 8 depending from claim 1, and claim 20 depending from claim 13.

In regard to Rejections of Claims 9 and 10 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Obata in view of Emori and Coe, and further in view of Davenport, International patent publication No. WO 01/97989. The Applicants believe that the Examiner's rejection has been addressed and overcome by the present amendment.

The Examiner's attention is directed to the following feature of claim 1:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claim 1 is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

As discussed above with respect to claims 1, 4-5, 7, 9, 11 and 12, this deficiency in Obata and Emori is not remedied by Coe.

This deficiency in Obata and Emori is not remedied by Davenport, without admitting that Davenport can be combined with Obata or Emori and reserving the right to argue thereagainst in the future.

Referring to lines 25-29 of page 5 of Davenport,

In a preferred embodiment of the invention there is used a composite work roll that has an effective Young's modulus which is very different from that of solid steel. Such a composite work roll is preferably fabricated as a core on which is mounted one or more cylindrical layers.

Referring also to Figure 1, it is apparent that Davenport relates to a work roll 1 made of one or more concentric cylindrical layers, and as such the working roll of Davenport is cylindrical in shape. Therefore, Davenport does not teach a pair of working rollers each having a convex cylindrical shape.

Therefore, at least one feature of claim 1 is not taught by Obata, Emori, Coe and Davenport, alone or in combination, which combination is not admitted. As such, the Examiner is requested to withdraw his rejection of claims 9 and 10 depending from claim 1.

In regard to Rejections of Claim 21 under 35 U.S.C. § 103(a)

The Examiner has rejected claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Obata in view of Emori and Coe, and further in view of Rudolph, U.S. Patent No. 4,934,306. The Applicants believe that the Examiner's rejection has been addressed and overcome by the present amendment.

The Examiner's attention is directed to the following feature of claim 13:

each of said pair of working rollers having a convex cylindrical shape

As discussed in the Applicants' communication dated February 28, 2007, at least the above feature of claim 13 is not taught by Obata or Emori, alone or in combination, which combination is not admitted.

As discussed above with respect to claims 1, 4-5, 7, 9, 11 and 12, this deficiency in Obata and Emori is not remedied by Coe.

This deficiency in Obata and Emori is not remedied by Rudolph, without admitting that Rudolph can be combined with Obata or Emori and reserving the right to argue thereagainst in the future.

Referring to lines 33-68 of column 8 of Rudolph,

FIG. 7 illustrates diagrammatically the apparatus and method for impregnating the thin film of substrate material with organic material according to the present invention. [...] The impregnated substrate material 150 subsequently can be

withdrawn from reel 174 and cut to desired shapes for pressing onto lithium anodes.

It is apparent that Rudolph teaches impregnating a glass substrate 150 with the organic material polyvinyl chloride, and later pressing the impregnated substrate material 150 onto lithium anodes to form coated anodes. Rudolph makes no mention of how the lithium anodes are formed. By extension, Rudolph does not teach passing a sheet of lithium or lithium alloy between the meeting surfaces of a pair of working rollers of any shape. In addition, Rudolph makes no mention of the construction of any of the rollers used for impregnating the substrate material 150. Therefore, Rudolph does not teach a pair of working rollers each having a convex cylindrical shape.

Therefore, at least one feature of claim 13 is not taught by Obata, Emori, Coe and Rudolph, alone or in combination, which combination is not admitted. As such, the Examiner is requested to withdraw his rejection of claim 21 depending from claim 13.

In view of the above remarks, the Applicant respectfully submits that all of the currently pending claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in a better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

At the time of filing of the present response, no fees were believed to be necessary. In case any fee should be necessary, the Office is hereby authorized to debit Deposit Account number 502977.

Respectfully submitted,

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